

# **NOAA Science Advisory Board Oceans and Health Working Group**

## **Final Report**

**Stephen Weisberg  
Working Group Chair**

**March 23, 2010**

# BACKGROUND

- **SAB received Oceans and Human Health Initiative briefing at your July 2008 meeting**
  - Initiated an Oceans and Health Working Group to help focus NOAA's mission in this area
  - Three members of the SAB plus eight subject area experts
- **OHWG provided six charge questions**
  - All focus on what, if any, role NOAA should have with respect to Oceans and Health
- **Specified our charge as human and organismal physiological health**
  - Avoid overlap with the Ecosystem Sciences and Management Working Group that is dealing with population and ecosystem health

# **OHWG MEMBERS**

|                                 |  |
|---------------------------------|--|
| <b>Dr. Lorraine Backer</b>      | <b>National Center for Environmental Health, Center for Disease Control and Prevention</b>   |
| <b>Dr. Daniel Baden</b>         | <b>Director of the Center for Marine Science, University of North Carolina at Wilmington</b> |
| <b>Dr. Shannon Briggs</b>       | <b>Michigan Department of Natural Resources and Environment</b>                              |
| <b>Dr. Thomas Chandler</b>      | <b>Dean, Arnold School of Public Health, University of South Carolina</b>                    |
| <b>Dr. Rita Colwell</b>         | <b>Center for Bioinformatics and Computational Biology</b>                                   |
| <b>Dr. David Fluharty</b>       | <b>School of Marine Affairs, University of Washington</b>                                    |
| <b>Dr. Frances Gulland</b>      | <b>The Marine Mammal Center</b>  |
| <b>Dr. Frank Kudrna, Jr.</b>    | <b>Kudrna &amp; Associates</b>   |
| <b>Dr. David Letson</b>         | <b>University of Miami</b>   |
| <b>Dr. Carolyn Thoroughgood</b> | <b>Vice Provost for Research, University of Delaware</b>                                     |
| <b>Dr. Stephen Weisberg</b>     | <b>Southern California Coastal Water Research Project</b>                                    |

# **OHWG CHARGE QUESTIONS**

- 1) What are NOAA's unique and important scientific roles in addressing ocean health issues?**
- 2) What are the right ocean health science questions, products and services for NOAA?**
- 3) Are there additional ocean health science issues that should be included in the NOAA research portfolio? If so, what are these?**
- 4) What are the appropriate steps for NOAA to incorporate and advance ocean health as part of its core mission?**
- 5) How could NOAA more systematically develop ocean health products and services to enhance ecosystem, organism, human, and community health?**
- 6) How can NOAA better integrate among its major programs, including activities conducted within the agency and those supported in the external community, to better define and assess ocean health issues?**

# OHWG PRESENTATIONS TO THE SAB

- **Initial Findings (July 2009)**
  - SAB had a positive reaction
  - Encouraged OHWG to proceed with a written report
- **Draft written report (Oct 2009)**
  - Liked the report, but asked for some revisions prior to requesting public comment
- **Final report being presented to you today**
  - Revised in response to your suggestions
  - Also responded to public comments

# SAB REVISION REQUESTS

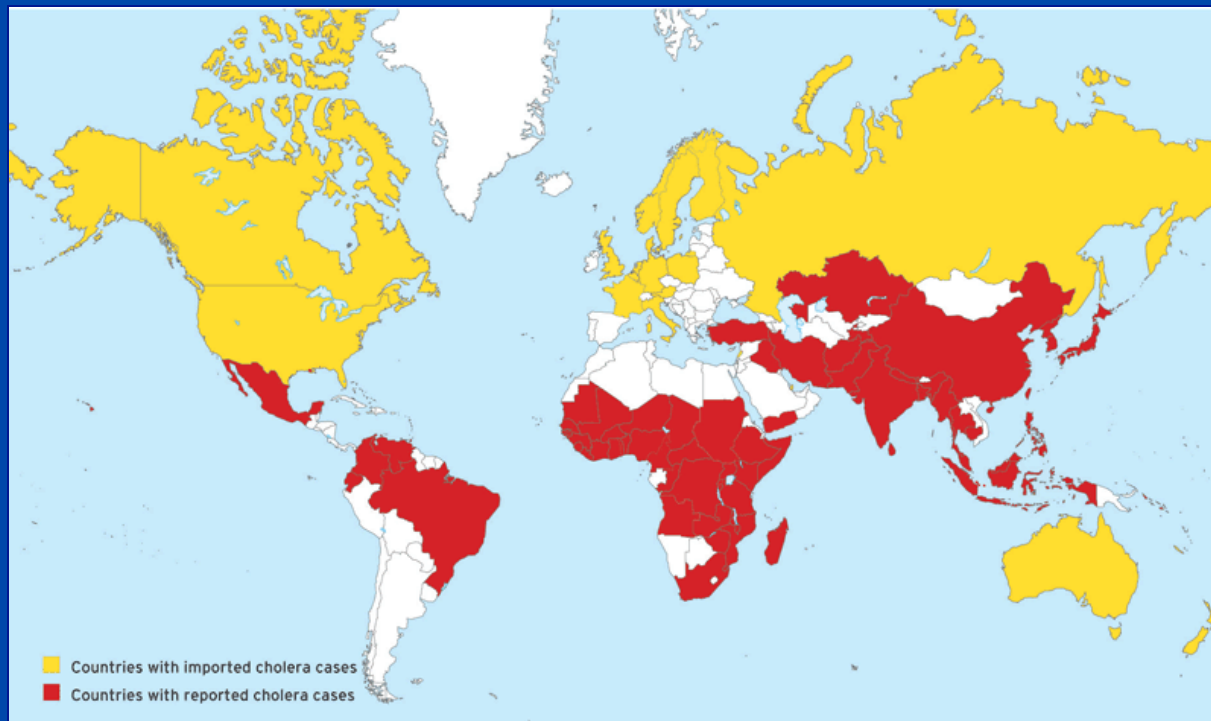
- **Place more emphasis on rationale for recommendations**
  - Budgets are finite and health must compete with other NOAA programs
  - SAB only wants to recommend high priority items
  - SAB agreed with the OHWG recommendations but felt the rationale was buried in the appendices and needed to be brought forward
- **Need better explanation of terms**
  - Oceans and Health
  - One Ocean, One Health
- **The OHWG re-structured the report to address these comments**

# **FINDING #1: THERE IS A NEED FOR ACTION**

- **Changes in ocean acidity, temperature and salinity are affecting the balance of risks and benefits from the sea**

# FINDING #1: THERE IS A NEED FOR ACTION

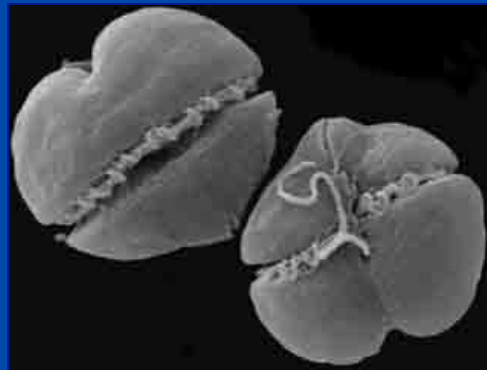
- Changes in ocean acidity, sea surface temperature, and salinity are affecting the balance of risks and benefits from the sea
- **PATHOGENS:** The geographic range of marine pathogens is changing





# FINDING #1: THERE IS A NEED FOR ACTION

- Changes in ocean acidity, sea surface temperature, and salinity are affecting the balance of risks and benefits from the sea
- **PATHOGENS:** The geographic range of marine pathogens is changing
- **TOXINS:** Harmful algal blooms are increasing in frequency and intensity
  - Inhalation of *Karenia brevis* toxins leads to beach closures
  - *Microcystis* threatens Great Lakes drinking water



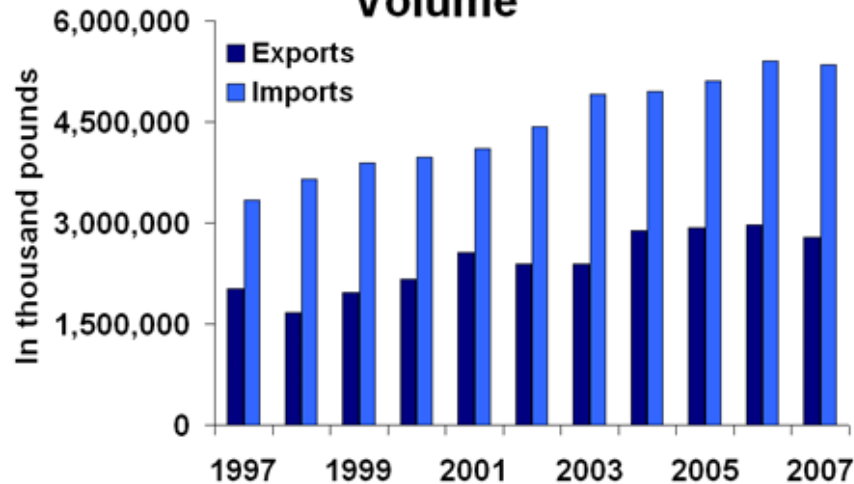
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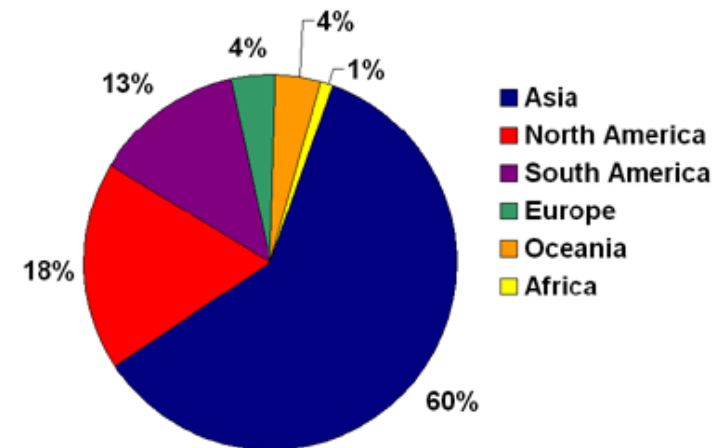
- **COASTAL FLOODING:** Increased intensity of tropical storms
  - Loss of life and property from storm surge

# FINDING #1: THERE IS A NEED FOR ACTION

**U.S. Seafood Imports and Exports, by Volume**



**Top Areas the U.S. Imports From, 2008, by Volume**



Source: NOAA, 2009

- **FOOD SAFETY: Increased importation of seafood has led to higher risk of food pathogens and toxins**
  - Importation from countries with lesser food quality and handling standards

## **FINDING #2: NOAA IS WELL-POSITIONED TO MEET THE NEED**

- **NOAA is the only agency with the capability and responsibility to ensure a holistic ocean health science and management strategy**
  - Other organizations have pieces
  - No other organization has the integration responsibility
- **NOAA has unique and important technical capabilities**
- **NOAA has the mission**
- **NOAA has demonstrated experience partnering with other agencies that have complementary skills and responsibilities**

# **NOAA'S UNIQUE AND IMPORTANT CAPABILITIES**

- **Nation's leader in observing and characterizing atmospheric and ocean systems dynamics**
- **Weather and oceanographic hazard predictions**
- **Harmful algal bloom predictions**
- **Unparalleled marine mammal expertise**
- **Assessing climate effects on oceans**

# NOAA HAS THE MISSION

- **Legislative mandates**

- Oceans and Human Health Act
- Marine Mammal Protection Act/Marine Mammal Health and Stranding Response Act
- Harmful Algal Blooms and Hypoxia Research and Control Act

- **Community drivers**

- U.S. Ocean Action Plan
- Ocean Research Priorities Plan and Implementation Strategy
- IOOS/GEOSS goals
- Mission to protect life and property
- Seafood safety



# DEMONSTRATED PARTNERSHIP SUCCESS

- **NOAA has only a subset of the federal capabilities**
  - NSF/NIH are partners in the Oceans and Human Health Initiative
  - USGS is the leader in coastal processes
  - EPA has toxicological and epidemiological capabilities
  - CDC has disease surveillance
- **NOAA has only a subset of the client base**
  - Beach health managers respond to EPA
  - FDA has primary responsibility for food safety
  - FEMA acts upon NOAA's coastal hazards predictions
  - CDC has the pipeline to the public health community
- **We interviewed leaders from these agencies**
  - They all want NOAA to be a leader in this field
  - NOAA is a science agency and provides a foundation that allows other agencies to do their job well
  - Everyone was impressed by NOAA's leadership in the Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health

## **FINDING #3: NOAA HAS A DIVERSE HEALTH PORTFOLIO, BUT THE PIECES NEED TO BE BETTER LINKED**

- **Activities are scattered across the agency**
- **NOAA staff found it difficult to list the agency's health programs**
  - Program list provided was focused mostly on research and OHHI
  - Failed to recognize many operational natural disaster and trauma programs
- **NOAA lacks a coordinating entity responsible for linking these pieces into a comprehensive program**



# **FINDING #4: NOAA CAN BETTER QUANTIFY AND COMMUNICATE THE BENEFITS**

- **NOAA does a poor job of selling its successes**
  - Your budgets suffer as a result
  - Need to communicate a sense of urgency for your products
  - Demonstrate return on investment
- **NOAA saves lives and preserves health**
  - Screening systems for fish and shellfish contamination
  - Storm surge warning systems
  - Predictive models for search and rescue
- **Need to develop performance metrics**
  - Create public awareness of economic and social costs
  - Make them a focal point for how you judge agency success

# RECOMMENDATIONS

- **Establish health protection, preservation, and enhancement as an agency-wide goal**
  - Own the role
  - Incorporate it into the Next Generation Strategic Plan
- **Develop a comprehensive plan for NOAA's health programs**
  - Integrate disparate efforts into an integrated program
  - Link NOAA's efforts to other federal agencies with complementary skills
  - Base the plan on a systematic risk characterization that quantifies potential health benefits and threats
  - Ensure investment in activities that provide the greatest societal benefit
- **Focus initially on several priority projects**
  - Forecasts of impending threats
  - Surveillance systems for emerging pathogens, contaminants and toxins
  - Climate change effects on health
  - Health benefits from the sea

# PUBLIC COMMENTS

- **Received 15 comment letters**
  - 6 from NOAA organizations
  - 3 from NGOs
  - 6 from individuals (academics)
- **All were complementary of our findings and recommendations**
  - Most provided information to reinforce or elaborate on points we made
- **Most frequent comments were to incorporate materials prepared subsequent to our drafting the report**
  - Next Generation Strategic Plan
  - National Climate Service
  - National Fisheries Advisory Council recommendations

# CONCLUDING REMARKS

- Thank you to the SAB for bringing together an experienced and competent team to develop advice
- The OHWG enjoyed working together to critically review NOAA's current efforts and develop recommendations for the future
- The OHWG offers the results of these efforts to the SAB for its consideration
- Questions?